Claims

1. Arrangement for influencing and treating the air of at least one room by temperature adjustment as well as ionization of the supply air, having the following features:

- a first air quality sensor (12) in the external air conduit (7) of an air conditioning device (1) a first air quality sensor (12),
- at least one ionization apparatus (2), an ozone sensor (13), an air humidity sensor (14), an airflow sensor (15), and at least one device (3) for temperature adjustment of the air arranged in the supply conduit (8) between the air conditioning device (1) and the at least one room (4),
- at least one chamber-like or hood-like device (5) forming a component of the room (4) coupled to the supply conduit (8), wherein either the wall or the ceiling separating the chamber-like or hood-like device (5) or a chamber-like or hood-like device (5) and the room (4) from one another has openings for ensuring convection of the temperature-adjusted and ionization-influenced supply air into the room (4),
- and an exhaust air conduit (10) ending at the exterior as well as a recirculating air conduit (11) connected to the air-conditioning device (1) at the exhaust conduit (9) of the at least one room (4),
- a second air quality sensor (16) in the recirculating air conduit (11), and
- at least one control device (6) connected to the first air quality sensor (12), the ozone sensor (13), the air humidity sensor (14), the airflow sensor (15), the second air quality sensor (16), and the device (3) for temperature-adjustment of the air.

2. Arrangement according to claim 1, characterized in that in the supply air conduit (8) upstream of the chamber-like or hood-like device (5) or one of the chamber-like or hood-like devices (5) a regulator (17) for the volume flow of the supply air is connected and in that the drive for a control element of the regulator (17) for the volume flow of the supply air is connected to a control device and/or a control device in the room (4) and/or to the control device (6).

3. Arrangement according to claim 1, characterized in that several chamber-like devices (5) are arranged in one plane, in that chamber walls facing in the direction toward the room (4) have openings as penetrations, in that at least one layer on these chamber walls or a body (18) arranged loosely on these chamber walls or a body (18) positioned at a spacing from these chamber walls has the openings that ensure the convection of the temperature-adjusted and ionization-influenced supply air into the room (4), in that these chamber walls with the layers or these chamber walls and the loosely arranged body (18) are the wall or the ceiling as an intermediate ceiling.

4. Arrangement according to one of the claims 1 or 3, characterized in that the cross-sections of the penetrations as openings of the chamber-like devices (5) are smaller or identical or greater than the cross-sections of the openings of the body (18).

5. Arrangement according to claim 3, characterized in that the layer is a paint layer, a stucco layer, or a layer of fiber materials.

6. Arrangement according to claim 3, characterized in that the body (18) is comprised of fiber materials and in that the body (18) is a fabric, a woven material, a knit material, or a non-woven material.

7. Arrangement according to claim 1, characterized in that several chamber-like and/or hood-like devices (5) are arranged in one plane, wherein the chamber wall (24) of the chamber-like device (5) facing in the direction of the room (4) has penetrations and wherein the cavity of the hood-like device is open in the direction toward the room (4) in that the cavities (25) of the chamber-like and hood-like devices (5) are connected to one another, and in that a flexible web-shaped body (26) provided with openings or micro openings and enabling in this way the convection of temperature-adjusted and/or influenced supply air spans by means of a tensioning and fastening device the chamber walls (24) of the chamber-like devices (5) facing in the direction of the room (4) and/or cavities of the hood-like devices.

8. Arrangement according to claim 7, characterized in that the flexible web-shaped body (26) is either a plastic film or comprised of fiber materials and in that the flexible web-shaped body (26) is a fabric, a woven material, a knit material or a non-woven material or in that the flexible web-shaped body (26) is a layer system wherein at least one layer is comprised of fiber materials.

9. Arrangement according to claim 7, characterized in that the flexible web-shaped body (26) is the upper cover of the room (4) as well as an intermediate ceiling of the room (4).

10. Arrangement according to one of the claims 3 or 9, characterized in that the layer, the body (18) or the flexible web-shaped body (26) is comprised of a material that is not easily flammable or a non-flammable material or in that the layer, the body (18) or the flexible web-shaped body (26) is provided with at least one layer that is not easily flammable or a non-flammable layer.

11. Arrangement according to claim 7, characterized in that profiled bodies (27) form a frame as a component of the tensioning and fasting device with the flexible web-shaped body (26), in that two angularly positioned body walls of a profiled body (27) in a longitudinal direction have at least one first continuous opening (31) or groove, respectively, and at least one second continuous opening (32) or groove, in that the first openings (31) or grooves of the profiled bodies (27) face in the direction of the chamber-like and/or hood-like devices (5) and the second openings (32) or grooves face outwardly, in that in the second openings (32) or grooves a first spreading means is arranged, wherein the flexible web-shaped body (26) spans the surfaces of the profiled bodies (27) opposite the surfaces with the first openings (31) or grooves and is arranged in the second openings (32) or grooves and is resting against the first spreading means, in that in the first openings (31) or grooves second spreading means are located, and in that on the ceiling (22) of the room (4) or on elements attached thereto the second spreading elements are fastened.

12. Arrangement according to claim 11, characterized in that the profiled body (27) has at least two cavities separated from one another by a partition.

13. Arrangement according to claim 11, characterized in that the profiled body (27) is embodied such that the body wall or body wall area of the profiled body (27) spanned by the flexible web-shaped body (26) is not parallel to the surface with the first openings (31) or grooves, wherein the outer area of the frame has the greatest spacing.

14. Arrangement according to claim 11, characterized in that the spreading means has two spaced-apart arc-shade legs wherein the arcs face away from one another or in that the spreading means has two spaced-apart legs and in that at least two partial legs are arranged at an angle to one another such that the corners face away from one another.

15. Arrangement according to claim 11, characterized in that the profiled body (27) has at least three cavities separated from one another by two partitions, wherein two of the cavities are accessible through openings and also components of the spreading means are arranged therein and wherein the third cavity is limited by body wall areas as well as partition areas of the profiled body (27), and in that in the third cavity an end area of a corner element (30) is located.

16. Arrangement according to claims 3 and 7, characterized in that the tensioning and fastening device is a springy clamping mechanism (39), in that the end area of the body (18) is arranged in the clamping mechanism (39) or between the clamping mechanism (39) and a wall of a frame arrangement (40) or between the camping mechanism (39) and a wall of the room (4), in that the end area of the body (18) has a thicker portion (38), and in that the body (18) is a plastic film (37) that expands upon heating.

17. Arrangement according to claim 1, characterized in that a device the level of the ionization power of the ionization apparatus (2), wherein the ionization is

realized by electric discharge on ionization tubes or corona discharged tubes, is a control device (6) in accordance with measurements of:
- in particular load of the external air with volatile hydrocarbon by means of the first air quality sensor (12),
- contents of ozone in the supply air by means of the ozone sensor (13),
- relative humidity of the air to be treated by the air humidity sensor (14),
- the flow velocity or volume flow of the air to be treated by means of the airflow sensor (15), and
- the oxidizable air components of the exhaust air and/or recirculating air by means of the second air quality sensor (16).

18. Arrangement according to claim 17, characterized in that the control device (6) and the ionization apparatus (2) are connected such that at all times oxygen ions are present in the supply conduit (8).

19. Arrangement according to claim 17, characterized in that the control device (6) and the ionization apparatus (2) are connected such that the ionization power increases when an increase of the proportion of volatile hydrocarbons and/or of the air velocity and/or of the relative humidity of the air and/or of the oxidizable air components occurs.

20. Arrangement according to claim 17, characterized in that the control device (6) and the ionization apparatus (2) are connected such that upon occurrence of a value of ozone that is too high the ozone value is reduced by decomposition, wherein the ionization apparatus (2) is controlled by a temporally supplied periodic alternating voltage as at least one alternating pulse, alternating pulse rate, or at least one packet with a predetermined sequence of alternating pulses.

21. Arrangement according to claim 18, characterized in that the control device (6) and the ionization apparatus (2) are connected such that for a contents of ozone in the supply conduit (8) of greater/identical to 0.06 ppm the power of the ionization apparatus (2) is lowered and in that upon further increase

of the value of ozone the time is changed of the supplied periodic alternating voltage as alternating pulse, alternating pulse rate, and/or packet of alternating pulses of a certain number.

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